



CTR

Mobiclip 3D Depth Analyzer

User Manual

Version 1.6

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and should be handled accordingly.**

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1 Introduction

1.1 About This Tool

The Mobiclip 3D Depth Analyzer (hereafter called the "tool" in this document) is a tool that analyzes the parallax information for stereoscopic movies and still images.

This tool was developed to facilitate the detection of scenes that might cause discomfort for some viewers due to excessive parallax or inappropriate stereoscopic presentations. Please be aware that this is an optional tool for assisting with optimizing stereoscopic image displays.

Although this tool can help with the process of game development, it cannot replace a human being, so we recommend that developers continue to check video content by visual inspection as well.

1.2 About This Document

This document explains how to install this tool, the usage procedures, and known limitations.

2 Setup

2.1 Software Requirements

This tool has been confirmed to work on the Windows operating system versions below.

- Windows 7 with Service Pack 1, 64-bit edition.
- Windows XP with Service Pack 3, 32-bit edition.

In order to use the tool, you must install the Microsoft Visual C++ software below.

- Microsoft Visual C++ 2008 SP1 Redistributable Package (x86)
 - Search and get the package from <http://www.microsoft.com/download/>
 - Install it by following installer's instructions.

In order to analyze pre-recorded movie files, you must have the compatible 32-bit DirectShow filter installed on your PC that was used to create the movie file.

In order to record a video file (including the analysis results), you must also install a specific version of FFDSHOW.

- FFDSHOW 32-bit
 - Revision 3562 must be used.
 - Download the installation files from <http://sourceforge.net/projects/ffdshow-tryout/> (See the readme.html file in the root of the installation package for detailed instructions for finding revision 3562)
 - Install it by following installer's instructions.

2.2 Installation of the 3D Depth Analyzer Tool

This section describes the installation of the tool and the required license file.

2.2.1 Installation of the Tool

Launch *tools/Mobiclip_3D_Depth_Analyzer.exe* in the installation package, and follow the instructions displayed on the dialogs.

2.2.2 Installation of the License File

A license file is required, and must be installed to use the tool. After you launch the tool the first time, you will be prompted to specifying the location of the .LIC file on your PC, and this will install the license file.

The license file can be downloaded from the same website where you downloaded the installation package. For more details on how to get a new license file, please contact Nintendo technical support.

2.2.3 After the License Expires

Each license file is valid for a specific three-month period. After the license expires, you will be prompted to provide a new license file when you launch the application. You will need to download and install a new license to continue using this tool. For more details on how to get a new license file, please contact Nintendo technical support.

2.2.4 Uninstallation of the Tool

Select “Mobiclip 3D Depth Analyzer” from “Add/Remove Applications” window within the control panel to uninstall this tool.

2.3 Video Capture Components

Once the tool is installed on your PC, you can analyze movie files and images which have already been captured. To generate and capture new gameplay video, additional hardware and software components are required.

2.3.1 PARTNER-CTR-CAPTURE Hardware and Software

To capture video displayed by an application developed for CTR, a development kit and associated software is required. Please refer to the documents included with them for the setup and usage instructions.

- Hardware : PARTNER-CTR Capture or PARTNER-CTR Capture Debugger device
- Software : PARTNER-CTR-CAPTURE for Windows

Note: This tool is intended to analyze movie files captured using Nintendo's PARTNER-CTR CAPTURE software. However, the tool can also analyze movie files captured with other software, as long as the movie file has the required characteristics.

2.3.1.1 Required Configuration to Capture and Record Movie Files

In order to capture movies for the analysis with this tool, please configure the settings below.

1. Launch Nintendo's PARTNER-CTR CAPTURE software.
2. Select **Tool > Options** on the menu. At this stage, PARTNER-CTR Capture device must be connected, and the stereoscopic image must be available on the device.
3. Select **Capture** on the left tab.
4. Set items on capture screen to **Upper screens**, picture rotation to **Flat**, and all the numerical settings within **Outer frame** to 0.

By capturing movies with this configuration, they can be saved as 3D side-by-side layout, which is required for the analysis with this tool.

In addition, if a video capture board is installed in your PC, the output video from the DVI video output

terminal of PARTNER-CTR Capture / Capture Debugger can be analyzed in real-time. For details, please refer to the next section.

2.3.2 Video Capture Board for Real-Time Analysis

If a video capture board is installed in your PC, the output video from the DVI video output terminal of PARTNER-CTR Capture / Capture Debugger can be captured as input video to analyze in real-time.

Please refer to the video capture board's documentation for the setup and configuration procedures. This tool has been confirmed to work with the Intensity Pro card manufactured by Blackmagic Design Pty. Ltd.

For performing real-time analysis, the PC hardware must meet the following specifications.

Table 2-1 PC Hardware Requirements for Real-time Analysis

Required PC Hardware
Intel Core 2 Duo or AMD equivalent with 25 megabytes per second hard disk drive write speed

2.3.2.1 Required Configuration for Real-Time Analysis using the Video Capture Board

To perform real-time analysis of the video output from the . Please set the video output configuration of PARTNER-CTR-CAPTURE as below when

1. Launch Nintendo's PARTNER-CTR CAPTURE software.
2. Select **Tool > Video Output Settings** from the PARTNER-CTR-CAPTURE application menu bar.
At this stage, PARTNER-CTR Capture device must be connected, and the stereoscopic image must be available on the device.
3. Select **3D** on the top left tab.
4. Configure it as side by side layout, and set **Magnification ratio** for left and right videos to 100%.
5. Within the **DVI1** area, click on **UL Lcd** to select the left-eye image. Set the **Coordinate** values for the left-eye video to X=241 and Y=239
6. Within the **DVI1** area, click on **UR Lcd** to select the right-eye image. Set the **Coordinate** values for the right-eye video at X=641 and Y=239.

Note: You can also use the configuration files found in the *tools* directory of the installation package (*Mobiclip_3D_Depth_Analyzer.swg* or *Mobiclip_3D_Depth_Analyzer.swi* which is used in older versions of PARTNER-CTR-CAPTURE software).

3 Usage Instructions

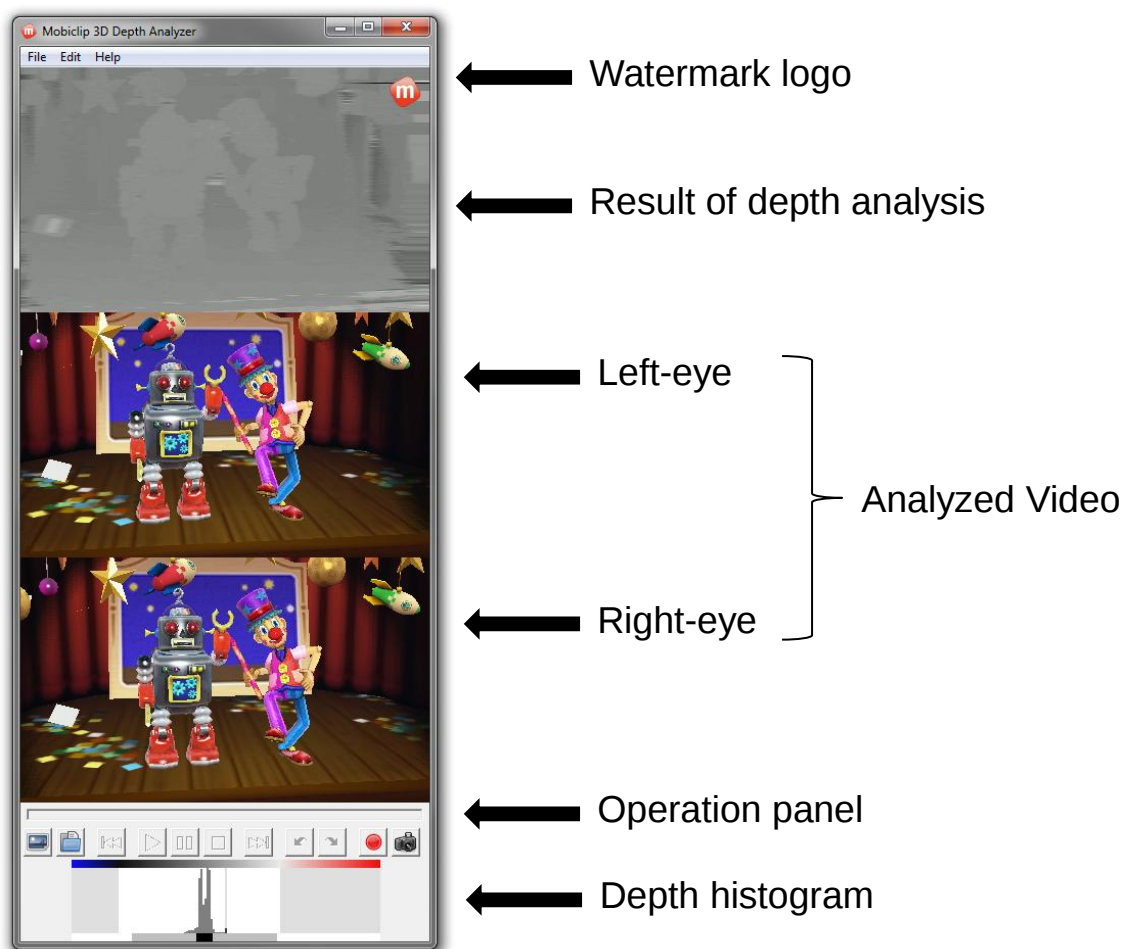
3.1 Launch This Tool

Launch *Mobiclip 3D_Depth_Analyzer.exe* in the installed directory (*C:\Program Files (x86)\Mobiclip Inc\Mobiclip 3D Depth Analyzer* by default), or from the Start Menu

3.2 Explanation of this Tool's User Interface

During analysis, this tool displays the user interface below.

Figure 3-1 Mobiclip 3D Depth Analyzer User Interface



3.2.1 Watermark Logo

The Mobiclip logo is added to the result of depth analysis as a watermark. If the watermark logo interferes with using the analysis result, it can be moved to any of the four corner positions. It cannot be hidden.

3.2.2 Result of Depth Analysis

The result of the parallax analysis is displayed with color information to help visually identify extreme conditions. The colors have the meanings below according to palette settings. Only the **greyscale** palette shows different colors when the depth exceeds the acceptable depth range.

Table 3-1 Meaning of Colors in Analysis Result

Palette	Too far Blue	Farther Black	Middle Grey	Closer White	Too close Red
Greyscale					

Palette	Farther Black	Middle Orange	Closer White
Iron heat			

Palette	Farther Pink	Middle Green	Closer White
Rainbow			

3.2.3 Analyzed Video

Videos for left-eye and right-eye are displayed vertically stacked (left-eye is above right-eye).

In case of analyzing still pictures, manual analysis is available by using your mouse to manually select a specific place in the image that you want to analyze.

3.2.4 Operation Panel

The operations below are available.

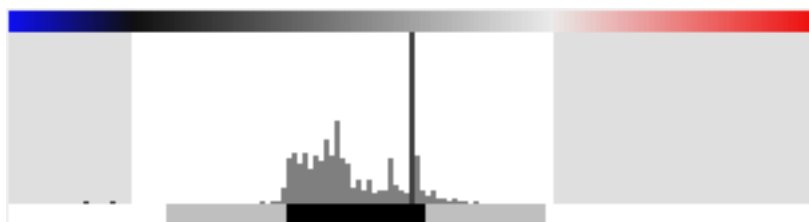
Table 3-2 Operation Panel

Icon	Feature	Detail
-	Seek bar	Changes playback point when playing video files.
	Real-time preview	Receives videos with a video capture board from PARTNER-CTR capture device for real-time analysis.
	Open file	Reads video files or still picture files to analyze.
	Previous frame	Displays the previous frame when analyzing video files.
	Play	Starts playback of video files.
	Pause	Pauses playback of video files.
	Stop	Halts playback of video files and returns back to the beginning.
	Next frame	Displays the next frame when analyzing video files.
	Cue start	Sets the current frame as the beginning of a loop.
	Cue end	Sets the current frame as the end of a loop.
	Record video file	Records videos during real-time preview.
	Screenshot	Saves screenshot of analysis when analyzing video files or still picture files.

3.2.5 Depth Histogram

The horizontal axis represents parallax, and the vertical axis represents the number of pixels corresponding to a particular parallax value. This histogram shows the distribution of parallax within the analyzed images.

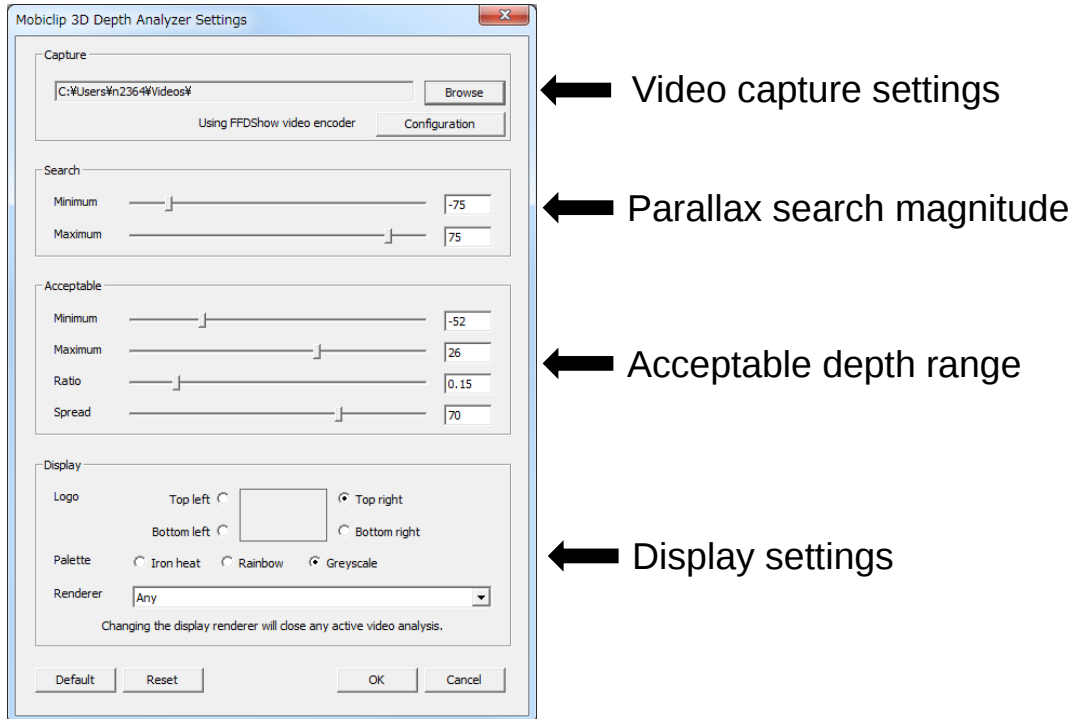
Figure 3-2 Depth Histogram



3.3 The Tool's Settings Window

Select **Edit > Settings** from the tool's menu bar to configure the settings for analysis.

Figure 3-3 Settings Window



Explanations for each field are below.

3.3.1 Video Capture Settings (Capture)

Click the **Browse** button to specify the directory where the movie file will be save that contains the analysis results.

Click the **Configuration** button to open the configuration window of the FFDSHow encoder so that you can configure the encoder settings used for recording. For the encoder settings please refer to FFDSHow documentation.

If your PC hard disk can write sequentially at 25 megabytes per second, it is recommend to use a lossless codec such as HuffYUV to allow for perfect re-analysis. Using lossy compression will introduce noise into the recorded movie file, and this noise will create inaccurate results if you choose to change the **Search** or **Acceptable** settings and re-analyze the output movie file at a later time.

3.3.2 Parallax Search Magnitude (Search)

The **Search** values determine the boundaries of what will be analyzed. Analysis will be done only up to the pixels of parallax which is set in this field, and anything exceeding this is not analyzed in order to avoid slowing down the overall speed of analysis. The value is in pixels.

Minimum means the parallax depth behind the screen (far from viewers). The allowable range is -99 to 91. The default value is -75.

Maximum means the parallax depth in front of the screen (close to viewers). The allowable range is -91 to 99. The default value is 75.

3.3.3 Acceptable Depth Range (Acceptable)

The Acceptable values determine the boundaries the tool will use to classify the parallax values as acceptable or not acceptable. In this field, set the acceptable range of analyzed parallax.

Minimum means the acceptable parallax range behind the screen. The settable range is -97 to 93, and it has to be more than **Minimum** value of **Search** + 2 pixels. The default value is -52, which is the recommended parallax range in the guidelines.

Maximum means the acceptable parallax range close to viewers. The settable range is -93 to 97, and it has to be less than **Maximum** value of **Search** – 2 pixels. The default value is 26, which is the recommended parallax range in the guidelines.

Ratio means that for one certain frame, if the percentage of pixels beyond the acceptable range is larger than the determined **Ratio**, then frame will be flagged in the log file as a frame which is out of the acceptable range. The settable range is 0.0 to 1.0, meaning 0% through 100%. The default value is 0.15. In this case, if 15% pixels on the screen (frame) are outside of the acceptable range, then this frame will be recorded in the log file as exceeding the acceptable range.

Spread means the upper limit of the range (difference between the maximum and minimum parallaxes) of parallax distribution (histogram). This is because users would easily feel uncomfortable when the difference between the biggest and smallest parallax is easily seen within the same frame image. This information will be recorded in the log file if the difference exceeds the upper limit. The value must be integer, and default is 70.

3.3.4 Display Settings (Display)

Set the rules of displaying analysis results and so on.

Logo is used to change the position of watermark logo. Choose one of the four corners in order to avoid the target area in analysis results. It cannot be removed from the result image.

Palette is used to select the color pattern when displaying the depth analysis results. For color information, please refer to Table 3-1 Meaning of Colors in Analysis Result.

Renderer is used to select the video rendering mode to use for displaying the analysis stream. The available options depend on the specific operating system and version of DirectShow you have installed. VMR-7 comes with Windows XP and DirectDraw 7, VMR-9 was added with Direct3D 9, while EVR is likely to be used on Windows Vista and Windows 7.

Note: Some rendering modes are incompatible with certain video cards or versions of Windows, and may result in errors. If this occurs, please select another rendering mode to use.

3.4 Analysis of Movie Files

3.4.1 Reading a Movie File

Open the file by selecting **File > Open file...** from the tool's menu bar.

In order to analyze a movie file, it must have the required characteristics below

The movie file must be

- in 3D side-by-side layout with a total dimension of 800x240, 960x240 or 1280x480 pixels.
- 400x720 pixels containing 3 stacked images (analysis result, left-eye and right-eye)
- AVI file
- Encoded with any DirectShow codec that is installed on your PC.

Movie files captured and created using and also be opened for re-analysis. The output movie files from this tool have dimensions of 400x720 pixels. The 400x720 pixel dimension is made up of three vertically stacked 400x240 pixel images comprised of the calculated depth analysis, the left-eye and the right-eye.

3.4.2 Operation in Analysis

Analysis starts right after selecting a movie file to open. The movie is played and stops at the end, with both the left and right eyes being displayed along with the result depth analysis image.

If you want to replay the movie, press the stop button and go back to the beginning.

If you need to change settings and rerun the analysis, then open and reload the movie file again.

3.4.3 Analysis Log

After the entire movie has been played in the main display, the analysis log file will be automatically created in the directory where the movie file exists. Log file format is CSV (text file).

Figure 3-4 Example of Analysis Log

	A	B	C	D	E	F	G
1	Search min	Acceptable	Acceptable	Search maximum			
2	-75 px	75 px	-52 px	26 px	15%	70 px	
3							
4	Frame	Far	Close	Median	Minimum	Maximum	Spread
5	0	0.00%	0.80%	-7 px	-25 px	0 px	25 px
6	1	0.00%	0.80%	-7 px	-25 px	0 px	25 px
7	2	0.00%	0.70%	-7 px	-25 px	0 px	25 px
8	3	0.00%	0.60%	-7 px	-25 px	0 px	25 px
9	4	0.00%	0.60%	-7 px	-25 px	0 px	25 px
10	5	0.00%	0.60%	-7 px	-25 px	0 px	25 px

The first block reminds the settings used for this analysis

The second block in the log file presents the results of the analysis, with each line formatted as explained below.

- Frame: Frame index.
- Far: Ratio of pixels far from viewers (behind the screen.)
- Close: Ratio of pixels close to viewers (in front of the screen)
- Median: Middle of the frame parallax of analyzed depth, in pixels
- Minimum: Estimated lower bound of the frame parallax, in pixels.
- Maximum: Estimated upper bound of the frame parallax, in pixels.
- Spread: Difference between minimum and maximum values of the histogram, in pixels.

If frames that exceed the configured values of acceptable range are found, they will be flagged as *Exceed* in 8th column.

An additional third block of data is added when analyzing still pictures, with the complete map of parallax in pixels for the image.

3.5 Analysis of Still Pictures

3.5.1 Still Picture File Requirements

Open either a BMP or a MPO file by selecting **File > Open file...** from the tool's menu bar.

BMP files should be either:

- In a side by side layout with a total resolution of 800x240, 960x240 or 1280x480 pixels.
- In a stacked layout of 400x720 pixels, as created by using the Screenshot feature of this tool.

MPO files should be either:

- 400x240 pixels from the Capture Stereo Image feature of the PARTNER-CTR Capture tool.
- 640x480 pixels as taken by the 3DS camera.

3.5.2 Analysis Log

The analysis log file is automatically created after analysis.

For analysis of movie files, the depth information for each frame is provided.

In case of analysis of still pictures, the depth information for each pixel on the screen is provided.

3.6 Real-Time Analysis

The analysis of movies input via a video capture card is done in real-time.

Click the **File > Realtime preview** menu.

An 800x240 region will be cropped out of the center of the 1280x720 DVI output of a PARTNER-CTR Capture kit, as configured using the SWI or SWG file within the *tools* directory of the installation package. The left-eye and right-eye images will be split from an expected 3D side-by-side layout. The calculated depth information will be stacked with both eyes to form a 400x720 display that you see in the tool's user interface and in recorded analysis movie files.

Clicking the **File > Record video file** menu will start recording a sequence to the directory specified in the tool's **Settings** menu. Click **stop** to end the recorded sequence.

3.7 Manual Analysis

To perform manual analysis, vertical rulers must be added by using the mouse to select the desired location within the image. To add vertical rulers, click the left mouse button on left-eye and right-eye images displayed on the tool's main display screen. Use the mouse to drag and drop the vertical ruler onto the precise position where you want to measure the parallax manually. The parallax between the left and right vertical rulers will be displayed at the center of the screen. The ruler can be hidden by clicking right mouse button at any position on the screen.

Figure 3-5 Manual Analysis



In case of Figure 3-5, the parallax was measured at the position of a star on the blue background, and it was calculated to be -12 pixels.

3.8 Operation by Command Line

This tool supports command line execution.

Several parameters can be specified on the command line when launching the tool.

Code 3-1 Format of Command Line Call

```
Mobiclip_3D_Depth_Analyzer.exe INPUT_FILE [OPTIONS]
```

Specify the target file name to be analyzed for `INPUT_FILE`. The tool will read the specified file to start the analysis.

The options below can be specified on the command line.

Table 3-3 Command Line Options

Option	Argument	Detail
-exit	None	To close the application immediately after analysis. Please specify this option in case of batched processing etc.
-searchMinimum	Integer Default -75	Depth far from the screen will be searched up to this number of pixels of parallax.
-searchMaximum	Integer Default 75	Depth close to viewers will be searched up to this number of pixels of parallax.
-acceptableMinimum	Integer Default -52	Parallax of far from the screen will be considered acceptable if more than this number of pixels.
-acceptableMaximum	Integer Default 26	Parallax of close to viewers will be considered acceptable if less than this number of pixels.
-acceptableRatio	0-1 float Default 0.15	For one certain frame, if the ratio of exceeded pixels beyond the acceptable range is bigger than this specified ratio, the frame will be considered exceeding acceptable parallax.
-acceptableSpread	Integer Default 70	Specify the limit of the acceptable range (difference between the maximum and minimum parallaxes) of histogram distribution for one certain frame.
-configuration	File path	Specify the file path to read the configuration file for various settings. The default configuration file is saved as <i>Mobiclip 3D Depth Analyzer.cfg</i> located in <i>Application Data</i> .
-output	Directory path	Specify the directory to save the output results movie file or images.
-palette	Either <i>grey</i> , <i>iron</i> , or <i>rainbow</i> Default <i>grey</i>	Select the color palette to be used for the display of analysis results of depth buffer.
-logo	Either <i>opleft</i> , <i>topright</i> , <i>bottomleft</i> , or <i>bottomright</i> Default <i>opleft</i>	Specify the location of watermark logo in analysis result.

For the options that required specified values, please use the “equal” sign between option name and numeric value, such as `-searchMaximum=70`.

Please note that the command line operation can only be used with previously existing movie or image files. Real-time preview, recording and screenshots still require a manual action.

Analysis parameters are expected to comply with the following rules:

Code 3-2 Expected Values of Analysis Parameters

```
searchMinimum < acceptableMinimum < acceptableMaximum < searchMaximum
```

An example of a command line call is below.

Code 3-3 Example of Command Line Call

```
Mobiclip_3D_Depth_Analyzer.exe Sample.avi -exit -searchMinimum=-80  
-searchMaximum=80 -acceptableRatio=0.2 -logo=bottomleft
```

Configuration values are first read from the *Mobiclip 3D Depth Analyzer.cfg* file located in the Window's *Application Data* directory. Then, the configuration is updated if new values are provided on the command line.

If the same option name is provided multiple times on the command line, each subsequent occurrence overwrites the previous value, meaning that the the last one is what is used during analysis.

If a configuration file is specified on the command line, its options are parsed in a similar way, before returning to the rest of the command line, effectively acting as if the options were included in the command line call where the file appears.

4 Situations that Result in Inaccurate Analysis

4.1 Characteristics of Movie Files that are Difficult to Analyze

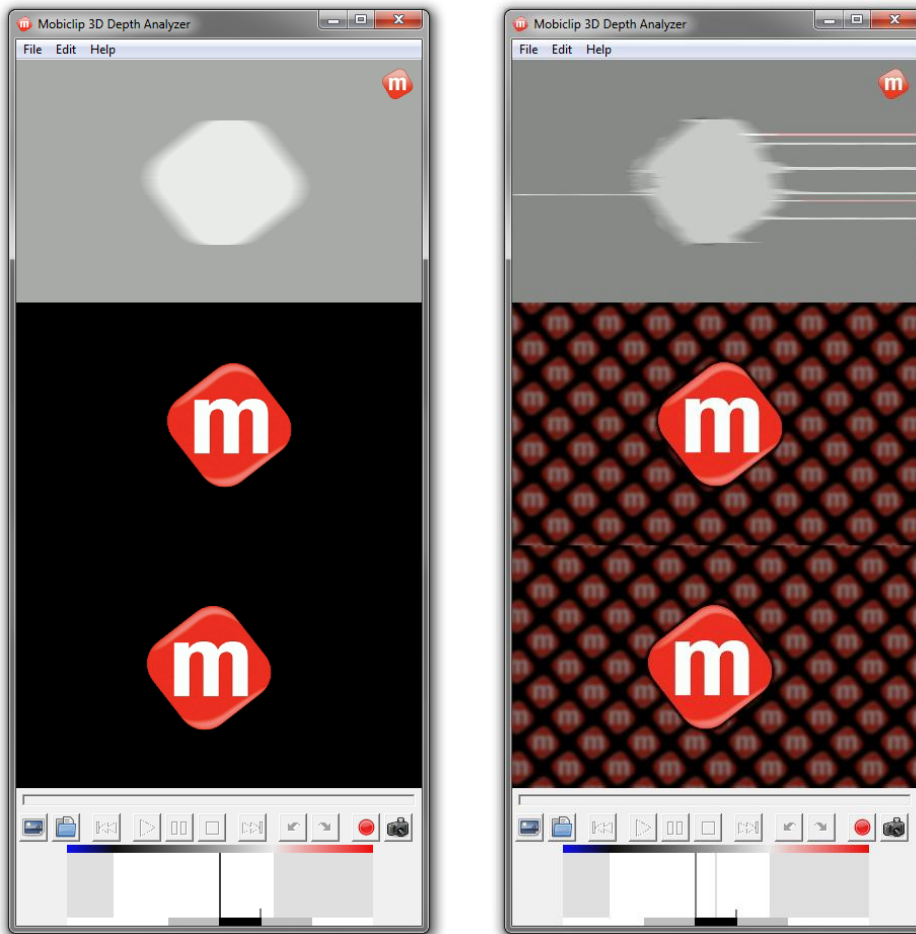
Due to the algorithm used for parallax analysis, the calculated parallax could be less accurate in some cases described in the following sections.

In these cases, please measure parallax manually.

4.1.1 Superimposed Images and Repeated Patterns

When a repeated pattern appear on both left-eye and right-eye images, it can make it harder for the algorithm to determine a consistent parallax, especially when a superimposed object breaks the pattern around its border.

Figure 4-1 Result with Object Superimposed over a Background Pattern

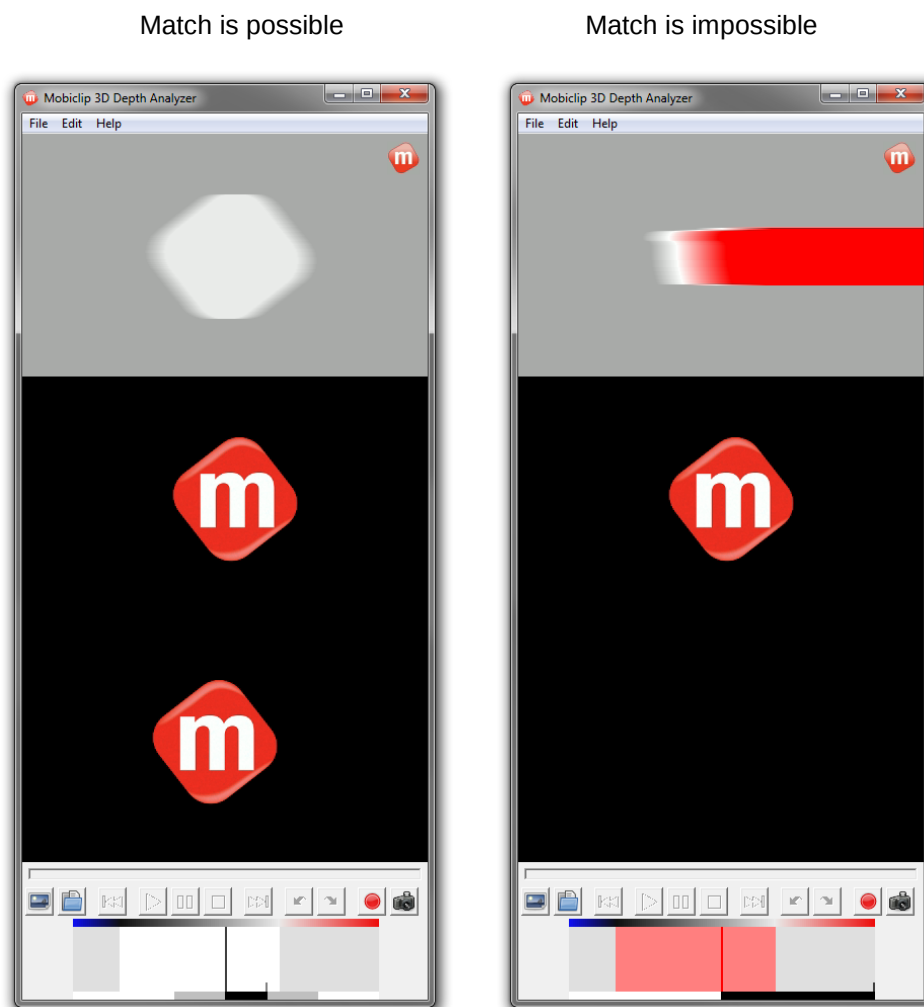


The background pattern is hidden behind the superimposed logo, which leads to analysis artifacts starting where the hidden background areas are not large enough to allow for a match to be found between the left-eye and right-eye images.

4.1.2 Unable to Match Pixels on Left-Eye and Right-Eye Images

The tool attempts to find matches between groups of pixels in the left and right images. If a match cannot be found, the tool is unable to identify any parallax and will likely calculate an incorrect depth.

Figure 4-2 Result When Unable to Match Pixels on Left-Eye and Right-Eye Images

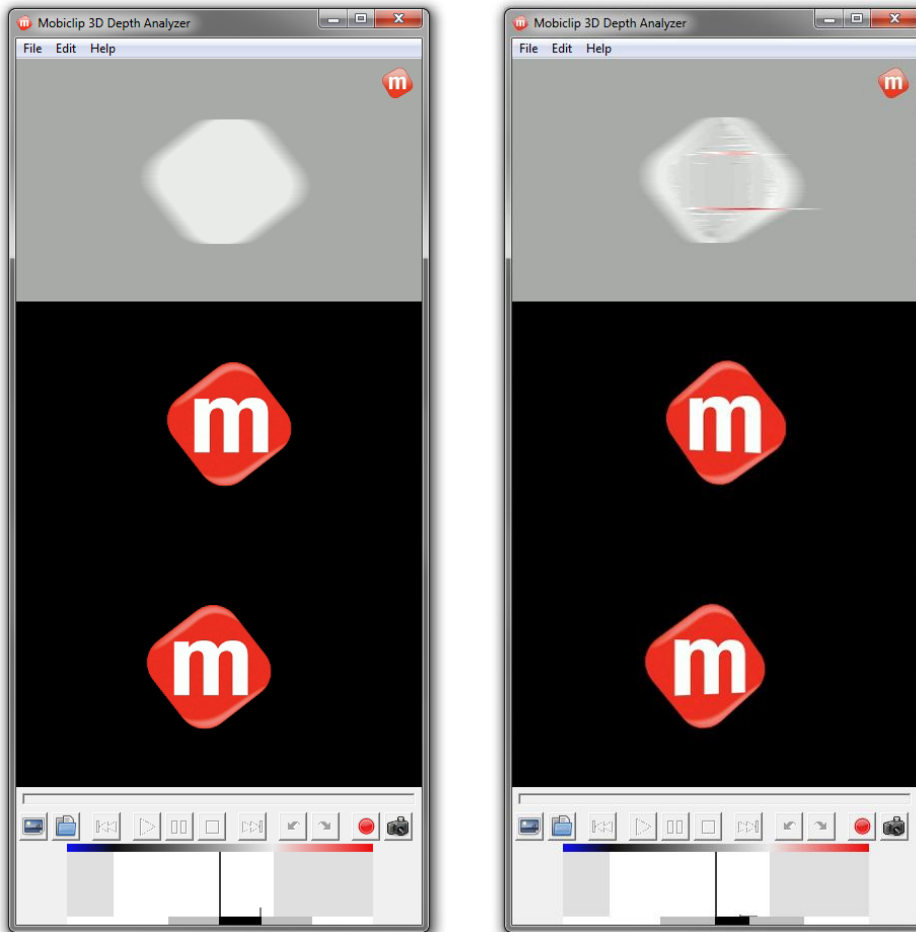


In the screen capture on the right, the tool is unable to find a match for the pixels in the logo. Thus, the tool will “think” that this object is so extremely close to the viewer that its right-eye view is outside of the screen area.

4.1.3 Pictures Exhibiting an Angle of Convergence

The tool looks for matches between the left-eye and right-eye on each horizontal line, from top to bottom. Pictures exhibiting with an angle of convergence, like the one below on the right, could trick the algorithm that attempts to find matches.

Figure 4-3 Results with Angle of Convergence



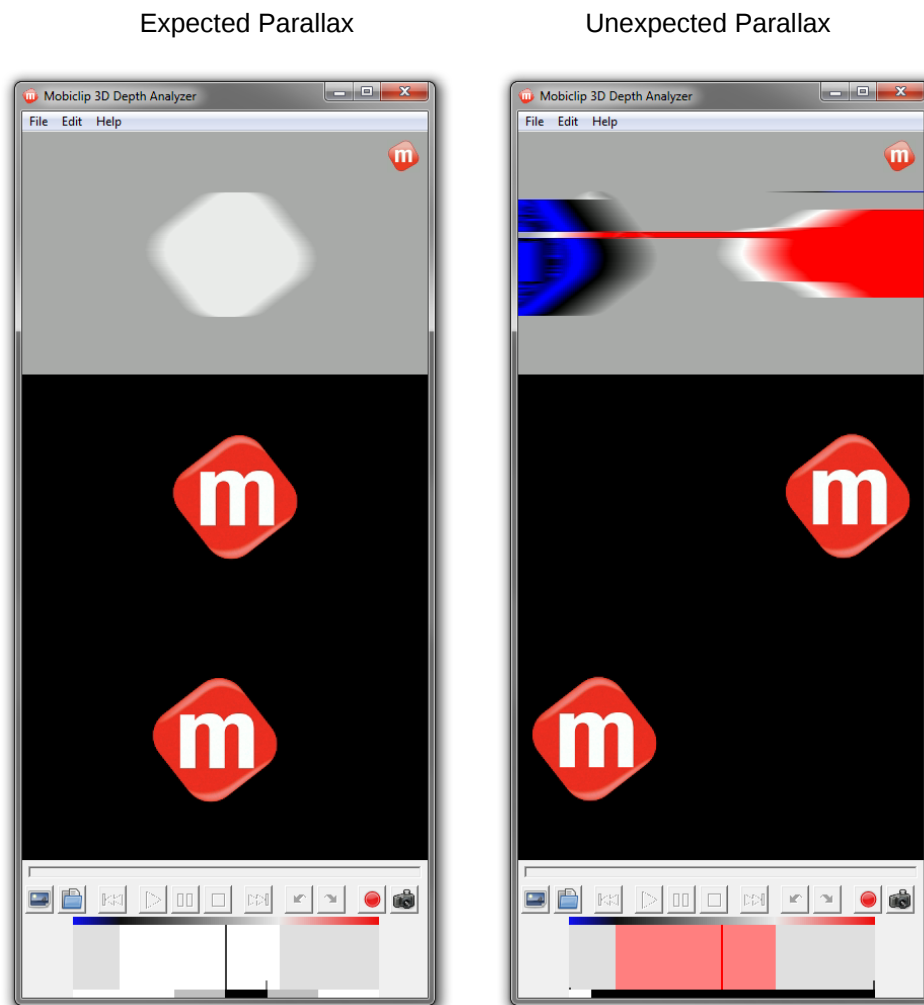
Due to convergence geometry, the lower portion of the icon in the left-eye image appears higher than in the right-eye. The tool is unable to identify a good match, leading to the red horizontal mark found at this position within the analysis result.

4.1.4 Parallax Exceeds the Search Range

The tool looks for matches within a limited horizontal range, which has been chosen to ensure the analysis can be completed quickly. Images exceeding this range are unexpected as they would not be acceptable to someone viewing the movie.

When processing pictures that nevertheless exceed the analysis range, the lack of a calculated match is likely to trick the analyzer.

Figure 4-4 Results when Parallax Exceeds the Search Range



On the left, the tool believes the logo found on the right eye is an object very far away whose match within the left eye might be somewhere outside the boundary of the left-eye image.

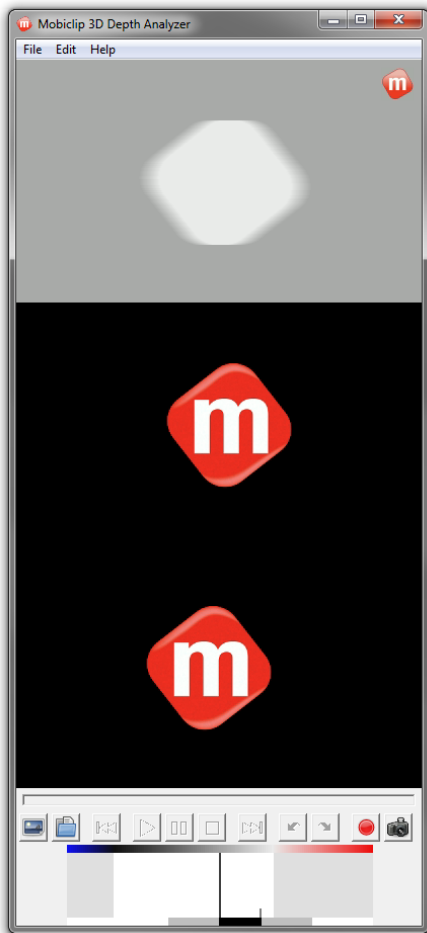
Based on this first guess, the tool is also unable to find a match for the “m” logo in the left-eye image as well, and considers it to have an exceeding parallax as to balance the other side.

4.1.5 Different Color and Brightness

When analyzing two photos with different exposures, or two pictures with different colors and brightness, the tool cannot detect a clear enough match to provide a smooth depth analysis.

Figure 4-5 Results for Different Color and Brightness

Consistent Color and Brightness



Inconsistent Color and Brightness

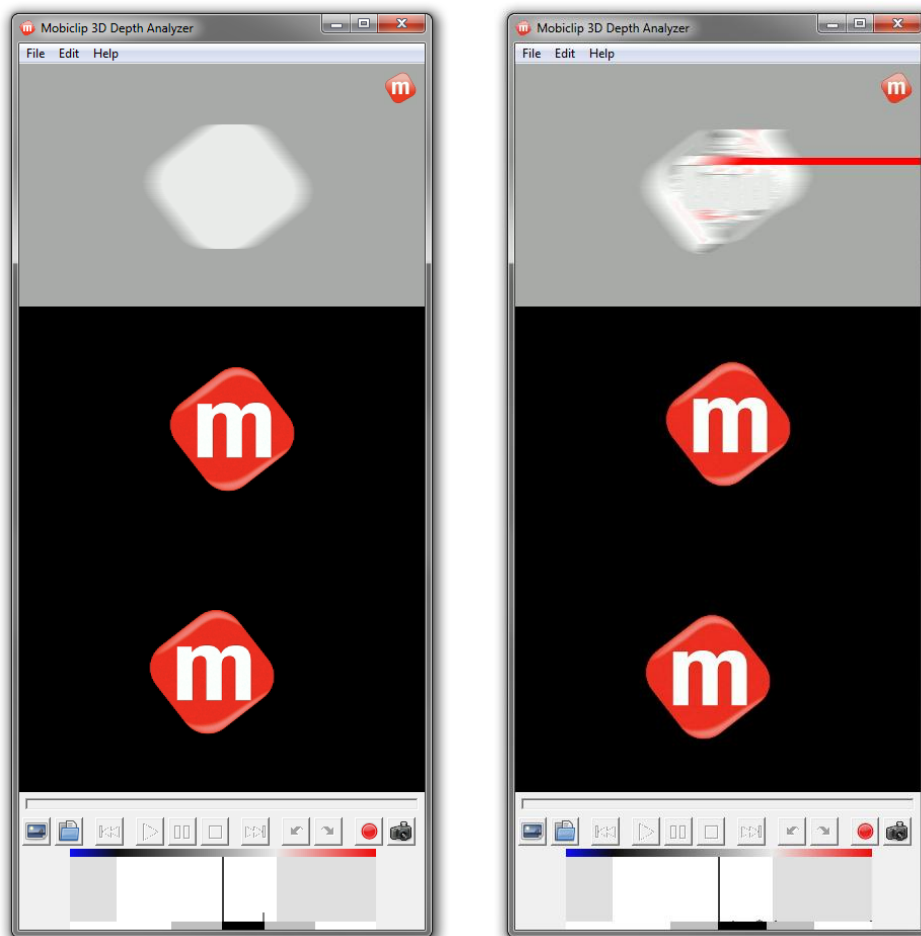


Because of strong color differences between both eyes, artifacts tend to appear in smoother regions. The lack of a sharp edges means that the tool does not have good enough information to make matches.

4.1.6 Vertical Misalignment

Pictures with an unexpected vertical parallax can prove disturbing to both the viewer and the tool. Objects should be aligned on the same horizontal axis.

Figure 4-6 Results for Vertically Misaligned Images

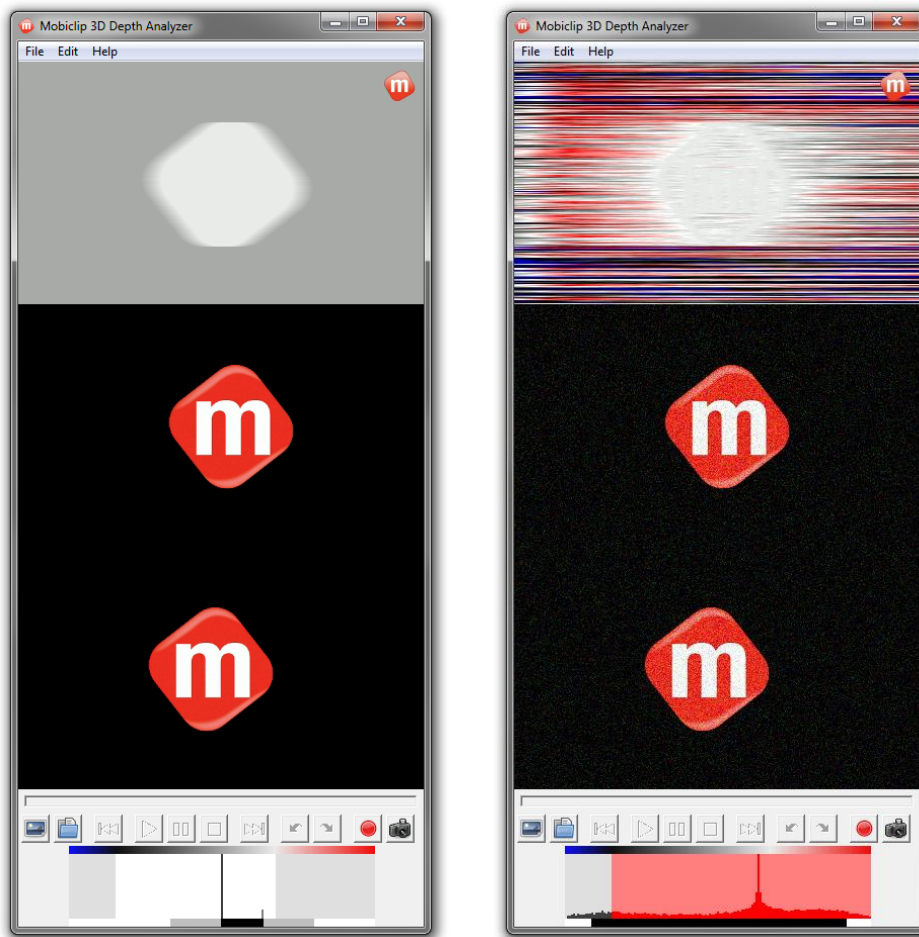


With the left eye slightly higher than the right eye, the upper and lower corners of the logo cannot be matched and will thus generate horizontal artifacts. The center region, having white vertical bands, exhibits enough similarity for the tool.

4.1.7 Input Movie File with Image Noise

With a bad signal to noise ratio, the tool can overreact to artificial patterns (the “noise”) in areas that do not have enough existing detail. The tool will think it has found many matching 3D elements with a variety of different depths, but in fact it only finds similar random patterns as a result of the noise, resulting in inaccurate analysis.

Figure 4-7 Results with Image Noise



A noise ratio of merely 10% can trick the tool in the background area, as the “noise” becomes the only detail that the tool is able to use to detect depth.

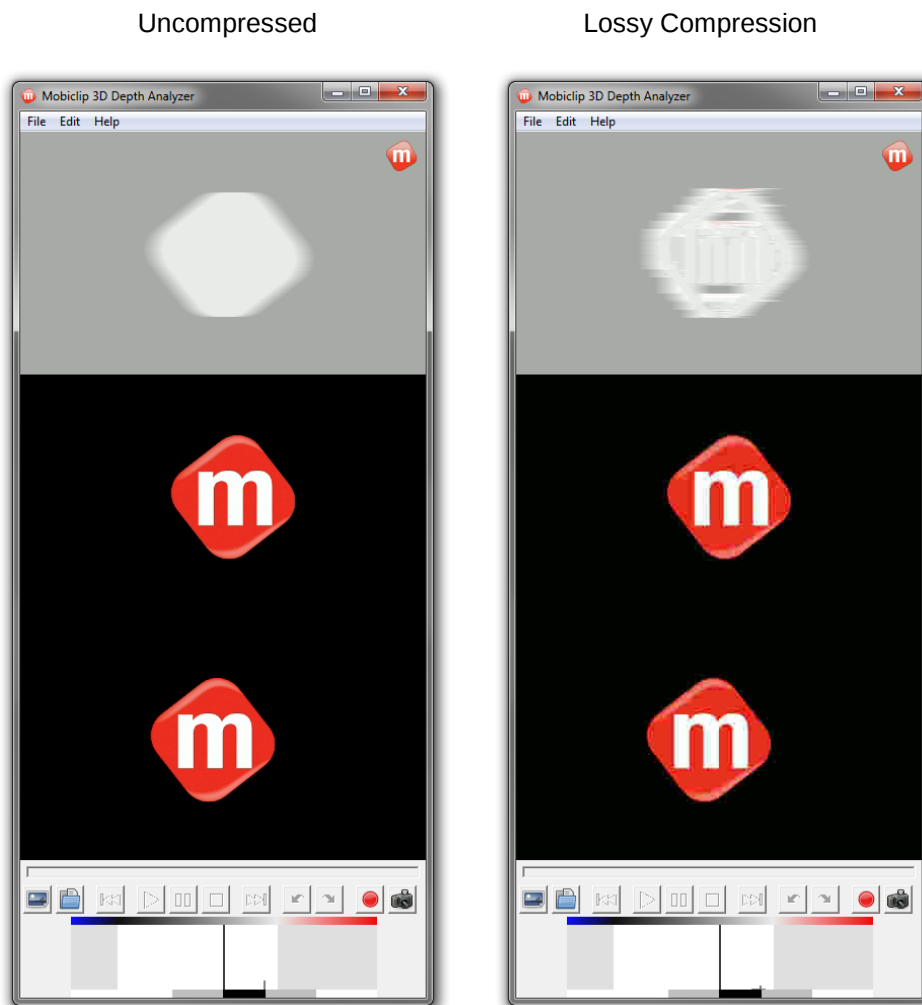
In regions with more details and distinct forms, like the center logo, visible patterns provide good enough matches for a cleaner depth analysis.

4.1.8 Lossy Compression of Input Movie Files

Lossy video codecs tend to remove small details in flat areas and introduce blocking artifacts near the sharper edges of images. Such artifacts may generate unexpected matches between both eyes, or prevent flattened areas from finding matches.

To get the most accurate analysis results, we recommend using a lossless codec or no compression when recording, as this prevents having artifacts introduced by lossy codecs.

Figure 4-8 Results Using a Lossy Codec



In this example, lossy compression added blocking artifacts over the edges of the logo in the image on the right, which then also appear in the analyzed depth.

Because the details in the flat red areas of the logo have been removed, no exact match is found right above and right below the letter “m”, leading to inaccurate variation of the calculated depth.

4.1.9 Pictures Taken by the 3DS Camera

Due to the optical difference on left-eye and right-eye cameras, and as a combination of several of the previous circumstances, the tool will likely fail to match elements from pictures taken by the 3DS camera.

Figure 4-9 Results for a Picture Taken by the 3DS Camera

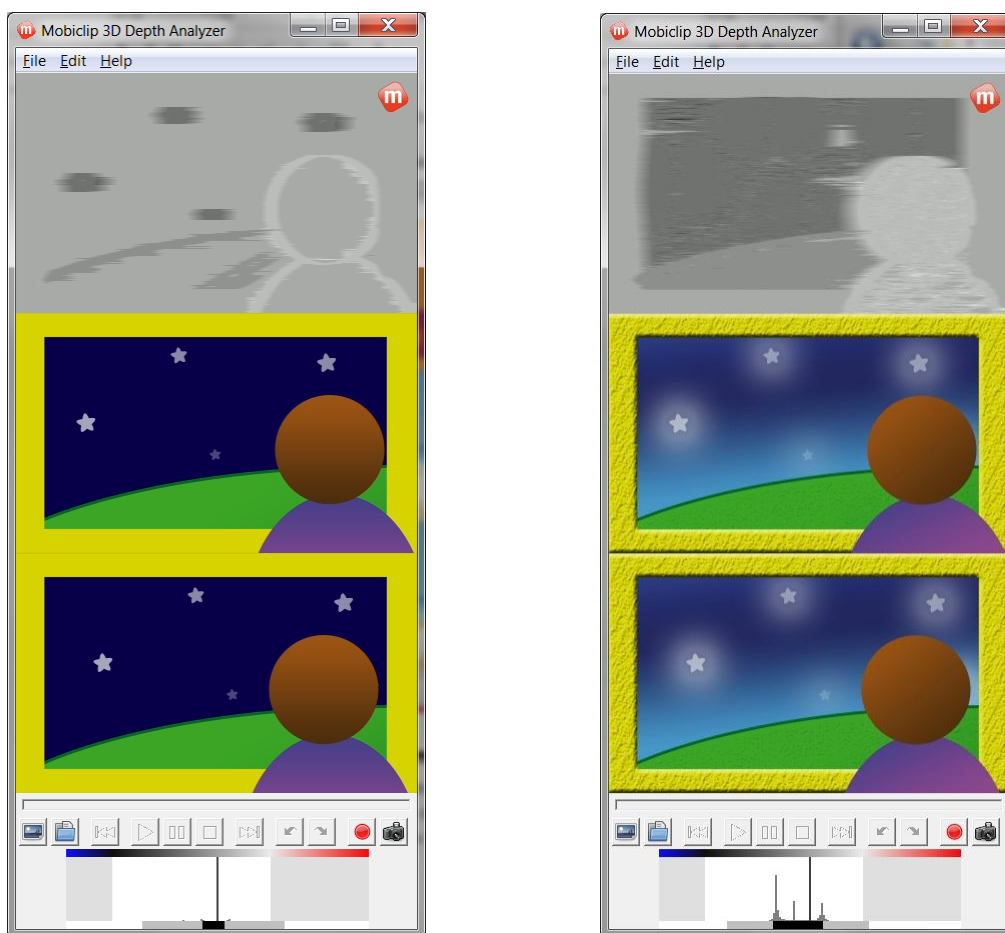


4.1.10 Areas Having the Same Color

Graphical elements like 2D sprites with uniform colors may produce zero parallax. The tool does not find enough horizontal variation and may only detect an outline.

To prevent this, we recommend using graphics with more details or with the appropriate lighting or shading to help identifying the elements and their location in the scene.

Figure 4-10 Results for Areas Having the Same Color



On the screen capture on the left, the tool can't detect the character in the foreground (only his outline) and fails to identify the hill, because the inner parts are considered to have zero parallax. In the screen capture on the right, the tool can properly identify every element because of the additional details.

4.2 Reversal of Left-Eye and Right-Eye Images

If left-eye and right-eye video images are reversed, then the expected stereoscopic effect will not be produced and it might make users feel uncomfortable.

When analyzing such videos using this tool, it outputs the reversed depth information from what was expected. However, since the tool does not detect what kind of image effect is expected originally, it will not be able to judge if it is unintended or not. The tool is unable to realize that left and right pictures have been reversed. Therefore, when confirming analysis results using this tool, please confirm that the intended stereoscopic effect has been produced in addition to ensuring that the depth is within the acceptable range.

Figure 4-11 Results with Reversed Images



In the above example, the analysis result on the right side is from having the left-eye and right-eye reversed. The characters should be seen closer to viewers originally, but the results image is colored darker (further from the screen) than the background.

Revision History

Version	Revision Date	Category	Description
1.6	2013/06/20	Additions	- Added section 4.1.10 about areas having the same color - Added section 2.3.1.1 on capture configuration - Added section 2.3.2.1 on capture board configuration
1.5	2012/09/03	Additions	Added chapter 3.7 to explain manual analysis.
1.4	2012/05/31	Additions	Added support for MPO files in chapter 3.5.1.
1.3	2012/05/09	Additions	Updated "about this tool" in chapter 1.1
1.2	2012/03/09	Additions	- Mobiclip 3D Depth Analyzer.exe file name changed to Mobiclip_3D_Depth_Analyzer.exe. - Mobiclip 3D Depth Analyzer.swi file name changed to Mobiclip_3D_Depth_Analyzer.swi in chapter 2.3.2. - Description of Mobiclip_3D_Depth_Analyzer.swg file added in chapter 2.3.2.
1.1	2012/02/24	Additions	Added usage scenarios.
1.0	2012/01/27	-	Initial version.

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